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From: Team 6

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# Subject: Replica Toys Data Model

## The Data Model

The data model for this database is designed to store data the following five functions: Registration Data, Return Data, Survey Data, Review Data and Quality Control and Testing Data.

To store registration data, the model will store basic customer information in the Customer and ZipCode tables. Each customer can make multiple purchases (stored in the Purchase table). Each Purchase then stores information about that the user of that specific purchase, using a Gender table to normalize the gender entry. At the time of registration, a registration questionnaire is filled out. Data for this questionnaire are primarily stored in Question and Answer tables. These tables may be reused on multiple applications. If the question may only have one answer, the question number, serial number and answer number are stored in the RegistrationQuestionSingle table. If the question has multiple answers, the answer number and serial number will be stored in the RegistrationQuestionMulti table.

To store return data, the date of return and return notes are stored in the Purchase table. The reason for return is stored in a standardized Reason table. There is no Boolean field for whether the item was returned or not. If these fields are null, the item will have not been returned.

To store survey data, a survey ID and survey date are stored in a Survey table. Survey questions will be stored in an intersection between Survey and Question tables. Survey answers will be linked to a CustomerSurvey table. By using this method, a standard pool of questions and answers can be built that can be used to populate multiple survey types.

To store review data, a Review Table references the Model table. Review data are stored in this table, which links to a ReviewSource table which stores data about websites that generate these reviews.

Lastly, the review system centers around a Report table. This table references Customer, Distributor and Purchase tables thereby reusing previously stored data. The majority of the information is stored in this table including long form descriptions. Again, there is no Boolean for whether an injury occurred. If the InjuryDescription field is not null then an injury has occurred. Standardized tables are used for the repeatable Reporter Type, Report Mode, and Report Problem fields. The Test table is linked to the report and used to store data about tests preformed in response to a specific report.

## Data Assumptions

This data model assumes that survey questions will remain standardized, and single answer only. If any open questions or questions with multiple answers will be utilized in the future, changes to the model will have to be made.

The application layer will be responsible for determining whether a question will have multiple stored answers or a single answer, and thus deciding to store data in RegistrationQuestionSingle or RegistrationQuestionMulti. A marker is stored in the Question table to allow the application to distinguish between the two types of questions.

Distributor and Model tables are referenced here in the data model, but should be replaced with existing distributor and model tables.

## Data Limitation

Any data that could be easily derived was removed from the database. This includes Boolean values such as whether or not an injury resulted from a report.

This data model is also susceptible to corruption from information change over time. As the only time information such as addresses and email are populated are upon receipt of the registration. Because of this any time a customer changes addresses or email that data will be bad. To remedy this, online forms should be implemented and additional tables created to store more information.

Model prices will also change over time. As prices change, the tables will have to be updated. There is currently no structure to store historical price information.